

# The Scientific Revolution

- Entrance task: Think: What was going on in Europe during the time of Copernicus (1500s) and Galileo (1600s) that may have contributed to the attitudes toward their new ideas?
- Today's class: The Scientific Revolution
- Homework: Ch. 16-2

## Things to make you say "hmmm"

### Table Talk Question 1:

Are there any examples of new ideas that have been met with a reaction similar to that of the heliocentric theory?



# The Scientific Revolution & Enlightenment

*16<sup>th</sup> – 18<sup>th</sup> century developments in science, technology, philosophy, music, art and literature.*

## The Scientific Revolution

The beginning of the scientific revolution:

- \* Copernicus - The Revolution of the Heavenly Bodies
- \* Vesalius - On the Structure of the Human Body
- \* Within a century and a half, man's conception of himself and the universe he inhabited was altered

## Ptolemy & the Geocentric Theory



- Early scientific thought was based a great deal of the work of Aristotle and Ptolemy. They believed that the earth was the center of the universe and that the sun and planets revolved around it.

## Copernicus and the Heliocentric Theory

Copernicus believed the opposite was true, and published his findings just prior to his death in 1543.





## Table Talk Question 2:

Why was the heliocentric theory received with such disdain by some?



Others supported the Copernican theory

Tycho Brahe  
Johannes Kepler  
Galileo Galilei



### Table Talk Question 3:

What did Isaac Newton mean when he said:

"If I have seen further than others, it is by standing on the shoulders of giants."



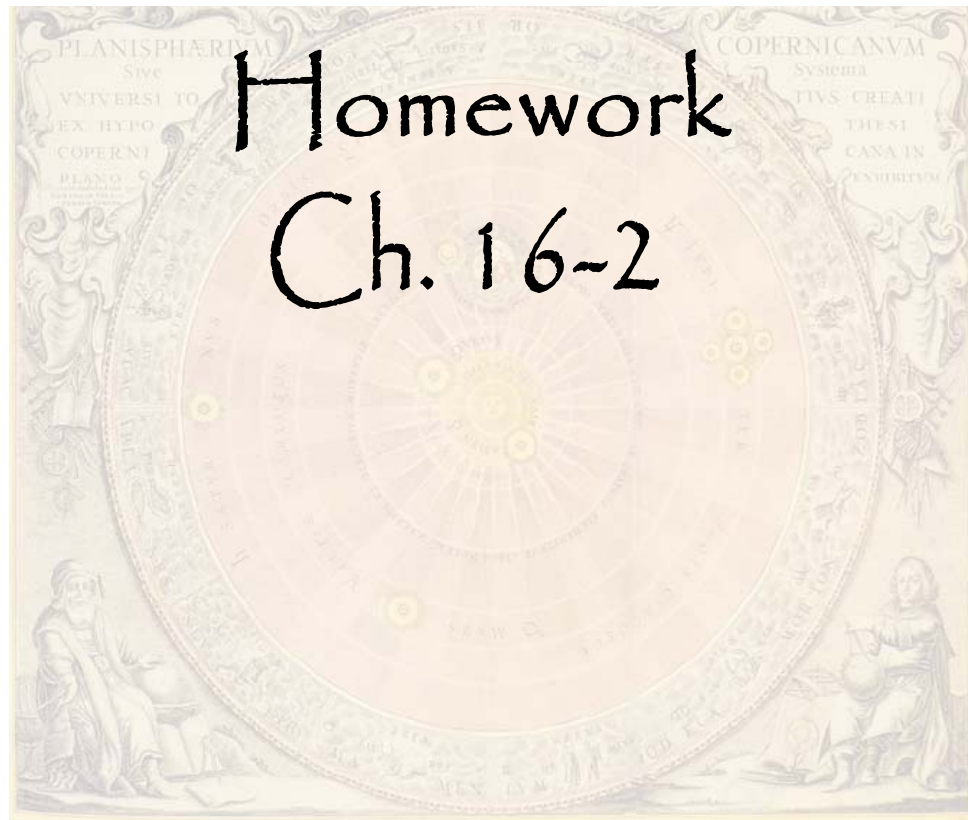
### Readings: Think about these questions

#### Cardinal Bellermino

- What position does he hold about the position of the sun and earth?
- On what grounds did Cardinal Bellermino reject Copernican theory?
- Do you think he could be persuaded to accept Copernican ideas?

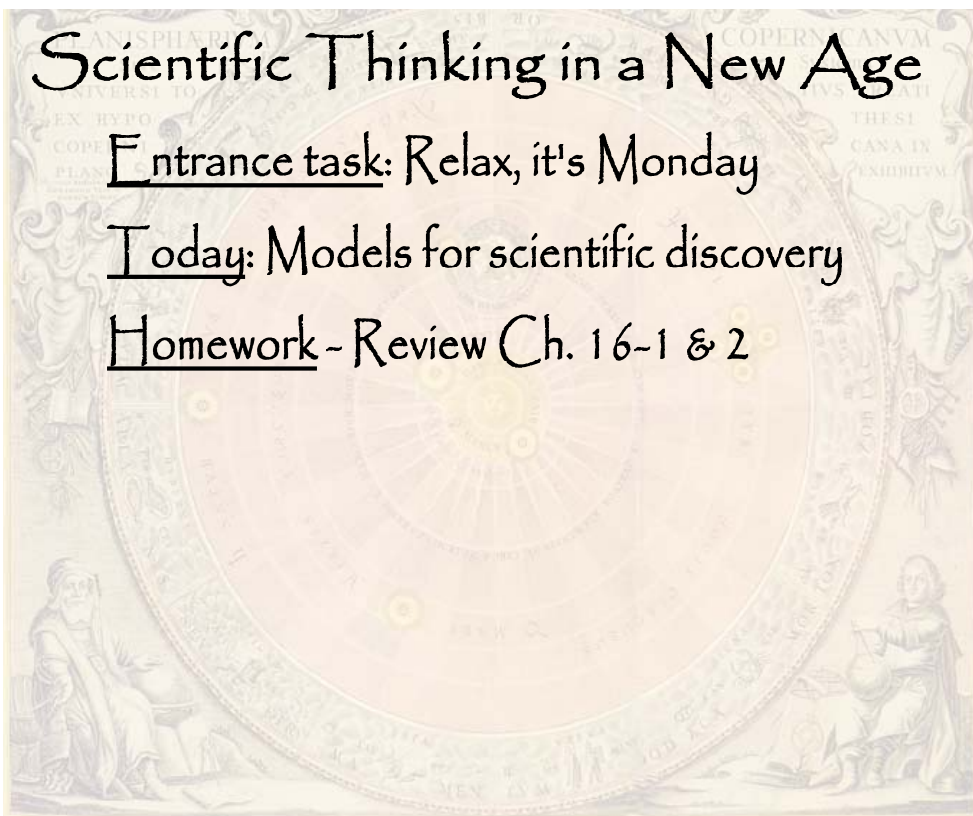
#### Galileo

- How did he feel about biblical authority and science?
- According to him, how did people gather information about nature?



# Homework

## Ch. 16-2



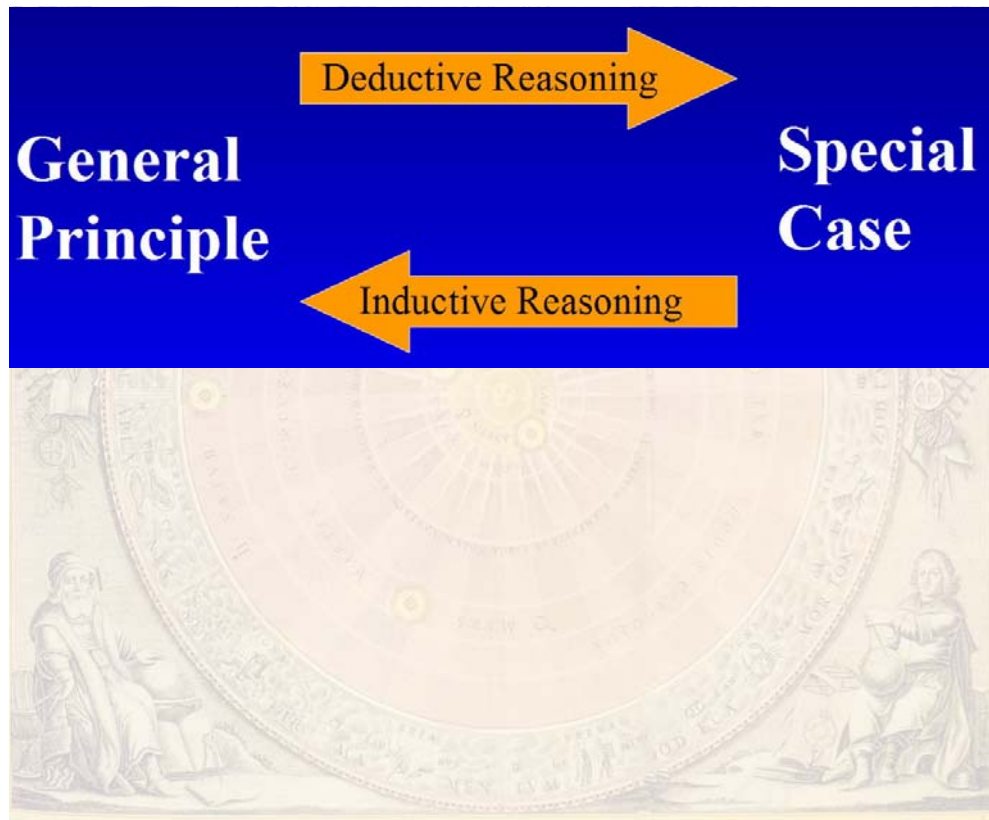
## Scientific Thinking in a New Age

Entrance task: Relax, it's Monday

Today: Models for scientific discovery


Homework - Review Ch. 16-1 & 2





# Scientific Thinking in a New Age

Inductive reasoning  
Empiricism  
Francis Bacon



A portrait of Francis Bacon, a man with a beard and a black hat, wearing a white ruff collar. The background of the slide is a faint, large circular diagram of the Copernican heliocentric model of the universe, showing the sun at the center with planets orbiting it, and figures of scientists at the bottom.

## Inductive reasoning

The doctrine that scientists should proceed from the particular to the general by making systematic experiments to test hypothesis or theories, a process that will lead to correct general principles



Francis Bacon

Every Social Studies textbook has an index.

Every Science textbook has an index.

Every Math textbook has an index.

Therefore all textbooks have an index.




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## Deductive Reasoning

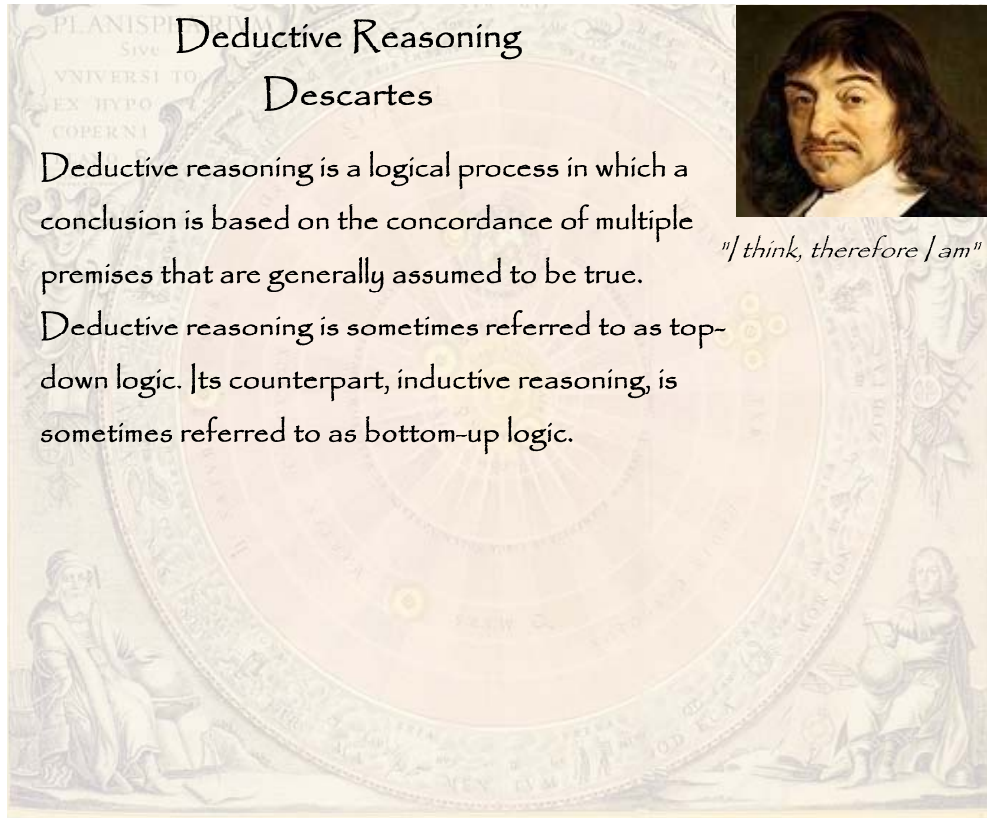
### Descartes

Deductive reasoning is a logical process in which a conclusion is based on the concordance of multiple premises that are generally assumed to be true.

Deductive reasoning is sometimes referred to as top-down logic. Its counterpart, inductive reasoning, is sometimes referred to as bottom-up logic.



*"I think, therefore I am"*

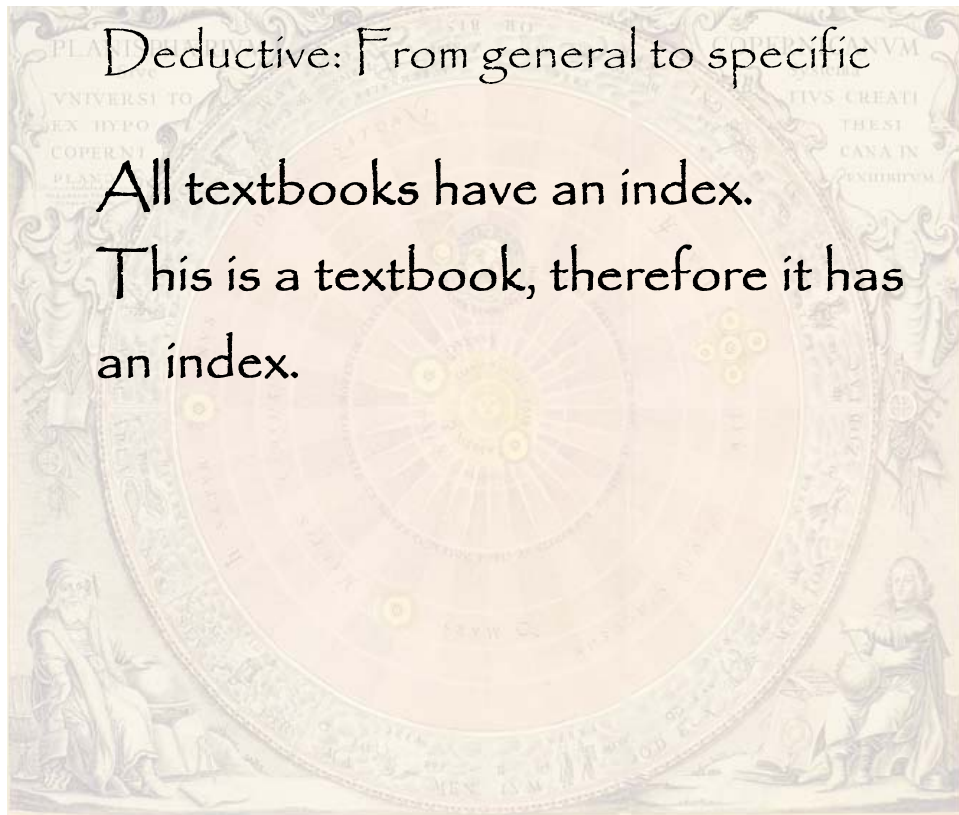


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## Deductive: From general to specific

All textbooks have an index.

This is a textbook, therefore it has an index.



## Ch. 16 1&2

Inductive Reasoning	Deductive Reasoning
from specifics to general	from general to specific
<b>Examples</b>	
Michelle, Krisna, and Karen are all thin. They are dancers. Therefore, all dancers are thin.	All dancers are thin. Karen is a dancer. Therefore, Karen is thin.
Ms. Mayumi, Mrs. Marikit, and Mr. Mabini are teachers. They are all nice. Therefore, all teachers are nice.	All teachers are nice. Ms. Mayumi is a teacher. Therefore, Ms. Mayumi is nice.
Parrots, eagles, and doves are birds. They can all fly. Therefore, all birds can fly.	All birds can fly. Parrot is a bird. Therefore, parrots can fly.

13 min  
Video

5 min  
Galileo

fppt.com

# Homework

## Review Ch. 16-1 & 2